

CLAIMS

1. Speed changer (1) with predetermined gears, especially for a cycle, for control by cables (3, 4), based on a single rotating grip (2), of gearshifts (5, 6) connected respectively to an elastic return means, such as a spring, said changer (1) comprising at least two cable operating mechanisms (7, 8) located within a case (18), one operating mechanism (7) of the cable (3) of the front gearshift (5) or chainwheel gearshift, the other operating mechanism (8) of the cable (4) of the rear gearshift (6) or cog gearshift, this second mechanism (8), jointly in rotation with the grip (2), being able to induce release or pulling of the rear cable (4) during rotation of the grip (2) in the same direction, characterized in that the rotary assembly formed at least from the operating mechanism (8) of the rear cable (4) and the grip (2) can be rotationally coupled intermittently to the operating mechanism (7) of the front cable (3) of the chainwheel gearshift (5), this operating mechanism (7) of the front cable (3), when coupled, being able to induce pulling or release of the front cable (3) of the chainwheel gearshift (5) depending on the direction of rotation of the grip (2).

2. Speed changer (1) according to claim 1, wherein the rotary assembly formed from the operating mechanism (8) of the rear cable (4) and the grip (2) can be rotationally coupled in an intermittent manner to the operating mechanism (7) of the front cable (3) of the chainwheel gearshift (5) via at least one element that rotates jointly with the grip and that can move axially along an axis that is parallel to the axis of the grip (2) during rotational displacement of the latter.

3. Speed changer (1) according to one of claims 1 and 2, wherein the intermittent rotary coupling of the assembly composed of the operating mechanism (8) of the rear cable

(4)/grip (2) with the operating mechanism (7) of the front cable (3) of the front gearshift (5) is obtained by at least one axial displacement of the operating mechanism (8) of the rear cable (4) along an axis essentially parallel to the axis of rotation of the grip (2) during one rotation of the latter.

4. Speed changer (1) according to one of claims 1 and 2, wherein the assembly formed by the operating mechanism (8) of the rear cable (4) and of the grip (2) can be rotationally coupled intermittently with the operating mechanism (7) of the front cable (3) of the front gearshift (5) by jaw clutching.

5. Speed changer (1) according to claim 4, wherein the jaw (9A, 9B) extends between the operating mechanisms (7, 8) of the cable (3, 4), the teeth (9A, 9B) of the jaw equipping one of the operating mechanisms (7, 8) that can be mounted with angular play on said mechanism in such a way as to allow take-up of the operating play.

6. Speed changer (1) according to one of claims 1 to 5, wherein the operating mechanism of the rear cable (4) is composed of a drum (8A) that rotates jointly with the grip (2), this drum (8A) on its outside periphery comprising at least one track (8B1, 8B2) for guiding a head (11) of the cable (4), said head (11) of the cable (4) moving translationally along one axis that is essentially parallel to the axis of rotation of the grip (2) as it follows the profile of the track (8B1, 8B2) obtained by rotation of the grip (2), this displacement, depending on its direction, inducing release or pulling of the rear cable (4).

7. Speed changer (1) according to claim 6, wherein the head (11) of the cable (4) is composed of two lugs (12) that can interwork alternately with one segment of the track (8B1, 8B2) of the drum (8A), this track being composed of two segments that are axially offset.

8. Speed changer (1) according to one of claims 6 and 7, wherein the head (11) of the cable (4) is provided with a spring (13) that returns at least one part of the head (11) in permanent contact with the track (8B1, 8B2).

9. Speed changer (1) according to one of claims 6 to 8, wherein the drum (8A) is equipped with means of immobilization in a plurality of predetermined angular positions, each corresponding to positioning of the rear gearshift (6) on a cog, these immobilization means, moreover, allowing axial displacement of the drum (8A) in the direction of pulling the cable (4) as the latter is being entrained in rotation via the grip (2), said drum (8A) being returned in the opposite direction by suitable return means.

10. Speed changer (1) according to claim 9, wherein the means of immobilization are composed of notches (14A) and teeth (14B), with a preferably truncated triangular profile, borne by the front surface of the drum (8A) and a stationary part with regard to the case (18), respectively.

11. Speed changer (1) according to one of claims 1 to 10, wherein the operating mechanism (7) of the front cable (3) is composed of a winch (7A) equipped with a throat (7B) for winding the front cable (3), this winch (7A) having a plurality of predetermined angular positions, each corresponding to one position of the front gearshift (5) on the chainwheel, this winch (7A) being returned in any of the angular positions by the action of a spring connected to the front gearshift (5).

12. Speed changer (1) according to claim 11, wherein the winch (7A) is immobilized in any angular position via stops (15) that extend between two tracks (16, 17) that are annular with respect to the differentiated profile, the one shown at (17) arranged on the front surface of the winch (7A), the other shown at (16) arranged on a piece that rotates jointly

with the grip (2), said axially movable stops (15) that follow an axis parallel to the axis of rotation of the grip (2), depending on the profile of the tracks, being retractable into the interior of a recess of the piece that rotates jointly with the grip to allow free rotation of the winch (7A) or being able to be kept in the projecting position of said piece to come to rest in the recess of the winch (7A) in order to prevent rotation of the winch in one direction corresponding to that obtained under the action of the spring linked to the front gearshift (5).